

REMARKS

In the Office Action dated June 28, 2004, the Examiner rejects claims 1-9 and 11-18 under 35 U.S.C. § 103(a). After entry of this Amendment, claims 1-8 and 11-22 are pending in the application. Claim 1 has been amended to more particularly point out and distinctly claim the subject matter the Applicants regard as the invention. Claim 9 has been canceled, and claims 19-22 have been added. Reconsideration of the Application as amended is requested.

The Examiner rejects claims 1-6, 8, 9 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Nakamura et al. (U.S. Patent No. 4,636,643) in view of Larson et al. (U.S. Patent No. 4,859,867). The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the intensity, duration, or frequency of a ray emitted from the radiation source and analyze a portion of the ray based on the intensity, duration, and frequency control as purportedly taught by Larson et al. in the device of Nakamura et al. Claim 1 has been amended to more particularly point out and distinctly claim that the controller of the device for detecting particles on a windshield is operable to analyze the ray for detecting the presence of particles on the windshield and for identifying a type of the particles. Because this feature is similar to that in claim 9 as previously presented, claim 9 has been canceled without prejudice. None of the cited references taken individually or in any permissible combination, teaches or suggests all of the features of claim 1 and its dependent claims.

Initially it is noted that the Examiner continues to mischaracterize the teachings of Nakamura et al. Nakamura et al. does not teach or suggest a single control unit that performs the functions recited in the claim. The emitting control circuit 7 and the control unit 10 are separate circuits that are not coupled electrically as shown in Figs. 1, 5 and 6. Moreover, they not shown to be physically near one another since the infrared-emitting means 1 and the infrared-receiving means 5 are at significantly different windshield locations as shown in Figs. 1 and 9. The Examiner states that Larson et al. supplies a single control unit that is operable to selectively control at least one of an intensity, duration and frequency of a first ray emitted by the

radiation source. It is respectfully submitted that the Examiner's interpretation of Larson et al. is incorrect. The control 32 of Larson et al. does not selectively control the intensity, duration and/or frequency of any emitted ray. Instead, one modulated signal is pre-selected by the programmer such that it is distinguishable from steady-state signals caused by ambient light. (Larson et al., col. 4, ll. 24-34; col. 5, ll. 42-58). That one modulated signal is applied by the driver 28.

In addition, the control 32 of Larson et al. is not operable to analyze the first ray for detecting the presence of particles on the windshield of the motor vehicle and for identifying a type of the particles when at least a portion of the first ray is received by the photodetector based, at least in part, on the at least one of the previously controlled intensity, duration and frequency of the first ray as required by claim 1. In Larson et al., a first detector provides a signal indicative of moisture on the windshield and a second detector provides a reference signal indicative of system variables such as ambient light. The steady-state portion of each detector signal is removed to correct for ambient light. (Larson et al., Abstract). Larson et al. has no capability of identifying the type of particles on the windshield, whether inside or outside. It cannot distinguish between dirt, dust, rain, snow, hail, fog, etc.

In rejecting claim 9, which is now canceled and the subject matter incorporated into claim 1, the Examiner continues to maintain that Nakamura et al. can determine the type of particles from the rays received by the photodetector. It is respectfully submitted that the Examiner fails to show that the recited feature of claim 1 is taught by Nakamura et al. As explained in response to the last Office Action, Nakamura et al. teaches that any decrease in the intensity beyond a certain predetermined level of the beam received by the infrared receiving means 5 must be interpreted as indicating the presence of fog on the windshield. (Nakamura et al., col. 3, ll. 52-56, col. 4, ll. 26-30). Although Nakamura et al. discloses a procedure whereby the reference intensity of the beam can be adjusted to account for the presence of contaminants on the windshield, nowhere is it disclosed that the device is capable of determining the type of particles present on the windshield.

For the foregoing reasons, it is respectfully submitted that claim 1 and its dependent claims are allowable over the prior art of record.

The Examiner rejects claims 7, 11-15, and 17-18 under 35 U.S.C. §103(a) over various combinations of references. However, it is respectfully submitted that Applicants' invention as set forth in these claims, each of which depends directly or indirectly from claim 1, patentably defines over the cited references as combined by the Examiner for the same reasons set forth above with respect to the patentability of Applicants' invention over Nakamura et al in view of Larson et al. Certain of the features of these individual claims further distinguish the invention from the prior art.

It is respectfully submitted that the Examiner's proposed combination of Nakamura et al., Larson et al. and Breed et al. (US 5,845,800) does not render claim 11 obvious because the including the device of Nakamura et al., which includes the infrared-emitting means 1 and the infrared-receiving means 5, in an interior light module of Nakamura et al. (not shown) would completely destroy the teaching of Nakamura et al. that the two means 1, 5 be located at opposite ends of a windshield as shown in Figs. 1, 9, 12 and 13 and as described in col. 3, ll. 33-40. The Examiner's combination ignores the express teachings of Nakamura et al. and is thus improper. Reconsideration of the rejection of claim 11 is respectfully requested.

The Examiner's proposed combination of Nakamura et al., Larson et al. and Stam et al. (US 5,923,027) similarly fails to render claim 12 obvious. Nakamura et al. shows the rearview mirror module and expressly states that the infrared-emitting means 1 and the infrared-receiving means 5 are located opposed to each other. It is respectfully submitted that the proposed combination does not render claim 12 obvious in view of the express teachings of Nakamura et al.

The Examiner also applies the combination of Nakamura et al., Larson et al. and Stam et al. in an effort to render claim 14 obvious. It is respectfully submitted that the Examiner's proposed combination is entirely based upon hindsight. Neither Nakamura et al. nor Larson et al., which purportedly detect fog and moisture, respectively, teach or suggest that their control unit(s) are operably associated with a

windshield cleaning system of the vehicle such that the windshield cleaning system is activated when the control unit detects dirt on the windshield. Neither detects dirt. Further, Stam et al. does not activate a windshield cleaning system when it detects dirt on the windshield. Stam et al. is a moisture detector. As such, it activates wipers 40 when detecting moisture caused by various things. (See also Fig. 5, #54). A windshield cleaning system also comprises a cleaner, which is not activated by Stam et al. The Applicants respectfully request reconsideration and withdrawal of the rejection of claim 14.

In combining Nakamura et al., Larson et al. and Stam et al. in a rejection of claim 16, the Examiner states that a visible LED as taught by Stam et al. inherently possesses a plurality of wavelengths within a visible spectrum range. The Examiner does not cite a reference to prove this "inherent" feature. The Applicants respectfully request a citation in accordance with M.P.E.P. 2144.03 showing that a visible LED has the feature asserted by the Examiner.

The Examiner rejects claim 13 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Nakamura et al., Larson et al. and Hegyi (US 5,703,568). It is respectfully submitted that the Examiner has misunderstood the teachings of Hegyi. The top control 46 is not a superordinate control unit, and Hegyi does not appear to teach or suggest such a feature. The top control 46 controls a convertible top of a vehicle. (Hegyi, col. 3, ll. 64-67). For this reason, it is respectfully submitted that claim 13 is allowable over the prior art of record.

The Examiner rejects claim 18 under 35 U.S.C. § 103(a) as being unpatentable in view of the combination of Nakamura et al., Larson et al. and Breed et al. As stated previously with respect to claim 11, the invention of Nakamura et al. is based upon the placement of the infrared-emitting means 1 and the infrared-receiving means 5 opposite from each other. The placement of the means 1 such that the optical rays strike the windshield at a similar angle with respect to a driver's line of sight would make the invention of Nakamura et al. inoperable. The invention of claim 18 is, therefore, patentable over the prior art of record.

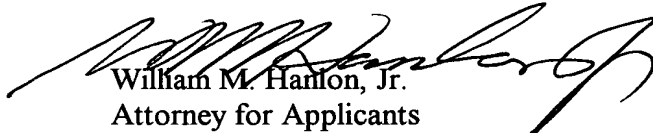
The Applicants herewith submit for examination new independent claim 19 and its dependent claims 20-22. Claim 19 describes a device for detecting particles on a windshield of a motor vehicle that includes a radiation source that emits optical rays onto the windshield, a beam receiver that receives reflections of at least a portion of the rays emitted onto the windshield, and a control unit that selectively controls at least one of an intensity, a duration and a frequency of a first ray emitted by the radiation source and is operable to analyze the reflections of the first ray and to identify a type of the particles based upon the at least one of the intensity, the duration and the frequency of the first ray and characteristic reflections of known particles. Claims 20-22 include additional patentable features therefor. Consideration and allowance of new claims 19-22 is respectfully requested.

It is respectfully submitted that this Amendment traverses and overcomes all of the Examiner's objections and rejections to the application as originally filed. It is further submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

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